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EXAMINER

KIM, CHONG R

ART UNIT PAPER NUMBER

2623

DATE MAILED: 02/24/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/765,621

Applicant(s)

TAKEO, HIDEYA

Examiner

Charles Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 11-13 and 17 is/are rejected.
- 7) ☒ Claim(s) 4-6, 8-10, 14-16 and 18-20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1 and 2 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,173,086. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1 and 2 of the instant application cover equivalent subject matter and is merely a broader recitation of claim 1 in the patent.

Claim 1 of the instant application recites "transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain" in lines 5-7, which corresponds to "performing a wavelet transform on an image signal" in line of claim 1 in the patent. Note that the wavelet transform results in a plurality of image signals which can be handled in the frequency domain.

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Claim 1 of the instant application further recites “reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a frequency of said periodic pattern in only the vicinity of an array direction of said periodic pattern” in lines 8-12, which corresponds to “wherein said wavelet transform is performed using at least one low pass filter which decreases the frequency components of said image signal which correspond to said periodical structure patterns” in lines 10-14 of claim 1 in the patent. Note that in claim 1 of the patent, the “frequency components” constitute the periodical structure patterns, and therefore are in a vicinity of an array direction of the periodic pattern.

Claim 2 of the instant application recites “transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain” in lines 5-7, which corresponds to “performing a wavelet transform on an image signal” in line 3 of claim 1 in the patent. Note that the wavelet transform results in a plurality of image signals which can be handled in the frequency domain.

Claim 2 of the instant application further recites “reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a grid array frequency of said stationary grid in only the vicinity of a grid array direction of said stationary grid” in lines 8-12, which corresponds to “wherein said wavelet transform is performed using at least one low pass filter which decreases the frequency components of said image signal which correspond to said periodical structure patterns” in lines 10-14 of claim 1 in the patent. Note that in claim 1 of the

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patent, the “frequency components” constitute the stationary grid patterns, and therefore are in a vicinity of a grid array direction of the stationary grid.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 7, the phrase “wherein each stationary grid to be used” in line 2 renders the claim indefinite because of inconsistency in the claim language. More specifically, it appears that the limitation implies a plurality of stationary grids. However, only one stationary grid is used (see claim 2, line 2). Therefore, the inconsistency of the claim language renders the claim indefinite. It appears that the applicant intended the phrase to read “wherein the stationary grid to be used”. A similar rejection is applicable to claim 17. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Yazici et al., U.S. Patent No. 6,333,990 ("Yazici").

Referring to claim 1, Yazici discloses a periodic-pattern suppression method of reducing a spatial frequency component which forms a periodic pattern contained in an original image signal, the method comprising the steps of:

a. transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain (col. 3, lines 50-54), and

b. reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a frequency of said periodic pattern in only the vicinity of an array direction of said periodic pattern [col. 3, line 62-col. 4, line 2. Note that the reduced "grid line spectral component" (380) is in the vicinity of an array direction of the periodic pattern, since the grid line spectral component constitutes the periodic pattern].

Referring to claim 2, Yazici discloses a periodic-pattern suppression method of reducing a spatial frequency component resulting from a stationary grid, contained in an original image signal, the method comprising the steps of:

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a. transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain (col. 3, lines 50-54), and

b. reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a grid array frequency of said stationary grid in only the vicinity of a grid array direction of the stationary grid [col. 3, line 62-col. 4, line 2. Note that the reduced “grid line spectral component” (380) is in the vicinity of the grid array direction of the stationary grid, since the grid line spectral component constitutes the stationary grid].

Referring to claim 11, see the rejection of at least claim 1 above.

Referring to claim 12, see the rejection of at least claim 2 above.

5. Claims 1, 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Hara, U.S. Patent No. 6,173,086 (“Hara”).

Referring to claim 1, Hara discloses a periodic-pattern suppression method of reducing a spatial frequency component which forms a periodic pattern contained in an original image signal, the method comprising the steps of:

a. transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain (col. 4, lines 50-60), and

b. reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a

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frequency of said periodic pattern in only the vicinity of an array direction of said periodic pattern [col. 6, lines 54-65. Note that the reduced “frequency components” in line 63 correspond to periodic structure (pattern), and therefore is in the vicinity of an array direction of the periodic pattern].

Referring to claim 2, Hara discloses a periodic-pattern suppression method of reducing a spatial frequency component resulting from a stationary grid, contained in an original image signal, the method comprising the steps of:

a. transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain (col. 4, lines 50-60), and

b. reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a grid array frequency of said stationary grid in only the vicinity of a grid array direction of the stationary grid [col. 6, lines 54-65. Note that the reduced “frequency components” in line 63 correspond to periodic structure (stationary grid), and therefore is in the vicinity of the grid array direction of the stationary grid].

Referring to claim 11, see the rejection of at least claim 1 above.

Referring to claim 12, see the rejection of at least claim 2 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 7, 13, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara, U.S. Patent No. 6,173,086 ("Hara").

Referring to claim 3, Hara further discloses that the transforming step obtains the plurality of transformed image signals by applying two-dimensional wavelet transformation to the original image signal by the use of a low-pass filter which splits a band so that its response at a frequency greater than the spatial frequency of the stationary grid becomes approximately zero (col. 6, line 66-col. 7, line 15 and figure 3), and the reducing step further applies a process of reducing a component less than a predetermined frequency [col. 6, lines 22-27. Note that the high-pass filter (11) reduces a component less than a predetermined frequency].

Hara fails to explicitly disclose the step of performing an inverse wavelet transformation with respect to a signal of the transformed image signals which contains a spatial frequency component corresponding to the grid array frequency. However, the Examiner notes that performing an inverse wavelet transformation to a signal that is in the wavelet domain was exceedingly well known in the art. For example, in conventional wavelet image processing, it was well known to perform an inverse wavelet transformation, in order to obtain an image in its original form (background of Hara, col. 1, lines 19-45). Therefore, it would have been obvious to modify Hara's teaching so that it includes the step of performing an inverse wavelet transformation, in order to obtain the image in its original form for proper display.

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Referring to claim 7, Hara further discloses that the stationary grid to be used is subjected to the reducing step (col. 2, lines 44-63 and figure 2).

Referring to claim 13, see the rejection of at least claim 3 above.

Referring to claim 17, see the rejection of at least claim 7 above.

Allowable Subject Matter

7. Claims 4-6, 8-10, 14-16, 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Barski et al. U.S. Patent No. 6,269,176 discloses a method for determining a grid length direction based on the calculated powers of frequency transformed image signals.

b. Arakawa et al. EP 0392504 B1 discloses a method for suppressing the spatial frequency components corresponding to a periodic pattern in an image.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

ck

January 29, 2004


AMELIA M. AU
SUPERVISORY PATENT EXAMINER
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